

REMARKS/ARGUMENTS

Claims 1-5, 7-12, 14-27, 29-32, and 34-87 are pending in the application, of which claims 38-81 have been withdrawn. Claim 1 has been amended.

Claims 1 and 12 have been rejected under 35 U.S.C. 102(b) over McMullen (U.S. Patent 3,323,777). Applicants have amended claim 1 to recite "wherein the external toothing of the spindle nut is formed through radially inwardly pointing indentations in the external surface of the spindle nut such that a crest of each tooth is defined by a portion of the external surface of the spindle nut." Applicants have further amended claim 1 to recite "wherein the spindle nut has in the axial direction on at least one side of the external toothing an end section without external toothing, and wherein an outer diameter of the crest is less than or equal to an outer diameter of the end section." McMullen does not disclose the noted limitations of claim 1.

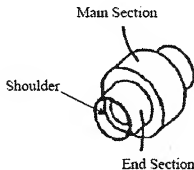
Referring to FIG. 6 of McMullen, the external toothing 54 is not formed through radially inwardly pointing indentations in the external surface of the spindle nut 30 such that a crest of each tooth 54 is defined by a portion of the external surface of the spindle nut 30. The teeth 54 protrude from the external surface of the spindle nut 30. Furthermore, the spindle nut 30 of McMullen does not have in the axial direction on at least one side of the external toothing 54 an end section without external toothing, and wherein an outer diameter of the crest is less than or equal to an outer diameter of the end section. The crests of the teeth 54 of the spindle nut 30 of McMullen represent the largest outer diameter of the spindle nut 30.

For the above reasons, Applicants believe that claims 1 and dependent claim 12 are patentable over McMullen.

Claims 1-5, 7, 8, 12, 15-27, 29-32, 34, 36, 37, 82-87 have been rejected under 35 U.S.C. 103(a) over Taubmann et al. (W09951456A1; using USP 7051986 as a translation of the PCT reference for discussing the rejection) in view of Hendrick (USP 2128483) and further in view of McMullen (USP 3323777). Claim 1 recites "wherein the internal toothing of the spindle nut interacting with the threaded spindle extends over a greater length in the axial direction than the

external toothing of the spindle nut so that the internal toothing extends axially into the at least one end section without external toothing.” For the reasons discussed below, one of ordinary skill in the art would not have combined McMullen with Taubmann as the Examiner asserts to provide a spindle nut as recited in the noted limitation of claim 1.

An enlarged portion of Fig. 4 of Taubmann, which shows a spindle nut 92, is reproduced below and modified by Applicants to include reference text. The spindle nut 92 has end sections with an inner bore having an increased inner diameter with respect to an inner bore of a main section such that shoulders are formed at the transitions from the end sections to the main section. One of the shoulders is clearly visible in Fig. 4 below and in Fig. 5. Because the shoulders are formed at the transitions from the end sections to the main section, the main section and the shoulders have the same length along the bore axis.



Enlarged view of a portion of Fig. 2 of Taubmann
(reference text added by Applicants)

Applicants believe that the internal toothing of the spindle nut 92 would have to be located axially between the shoulders because the end sections have a larger inner diameter than the inner diameter defined by the shoulders. If any internal toothing is provided in the end sections, such internal toothing would have a larger diameter than the diameter of the spindle 5, and therefore, would not properly engage the spindle 5 or not engage the spindle at all. Therefore, Applicants submit that an external toothing and an internal toothing of the spindle nut 92 of Taubmann must have the same length along the bore axis or have the same axial extension.

Applicants submit that one of ordinary skill in the art would not have modified the spindle nut 92 of Taubmann in order to have internal toothing extending over the entire length of the bore of the spindle nut as taught by McMullen. As discussed above, because the shoulders have internal toothing, any internal toothing provided in the end sections would not properly engage the spindle 5. Accordingly, one of ordinary skill in the art wishing to provide properly functioning internal toothing extending into the end sections of the spindle nut 92 of Taubmann would have to make the internal diameter of the spindle nut 92 uniform by either removing the shoulders or extending the shoulders entirely through the bore of the spindle nut as taught by McMullen.

If the shoulders are removed, the thickness of the main section of the spindle nut 92 would be reduced. With the removed shoulder, if the spindle nut 92 is further modified to have external teeth as taught by Hendrick, the thickness of the main section between the root of the external teeth and the inner diameter of the bore of the spindle nut would be reduced as compared to the thickness at the same location when the spindle nut 92 includes the shoulders. This reduced thickness may cause failure in the spindle nut of Taubmann when large operating forces are exerted on the spindle nut 92. Furthermore, if the shoulders are removed, the outer diameter of the spindle 5 would have to be enlarged so that the spindle 5 can engage with the inner diameter of the spindle nut. If the outer diameter of the spindle 5 is enlarged, then the structure of the holders 6a and 6b and the stops 6c and 6d shown in Fig. 2 of Taubmann would also have to be altered to accommodate the modified spindle 5. Therefore, Applicants submit that one of ordinary skill in the art would not have modified the spindle nut 92 of Taubmann as the Examiner asserts based on the teaching of McMullen because such modifications would significantly alter the structure of the spindle nut 92, the spindle 5 and the holders 6a and 6b, which would essentially involve significant modifications to the entire device of Taubmann.

Alternatively, extending the shoulders entirely through the bore of the spindle nut as taught by McMullen significantly alters the structure of the end sections of the spindle nut 92 and may involve significantly altering the method by which the spindle nut 92 is manufactured.

Additionally, such a modification would increase the weight of the spindle nut by a large amount. Therefore, Applicants submit that one of ordinary skill in the art would not have modified the spindle nut 92 of Taubmann to extend the shoulder in the end sections.

Applicants also submit that one of ordinary skill in the art would not have modified the spindle nut of Taubmann based on the teachings of Hendrick. The worm wheel 47 disclosed by Hendrick greatly differs in its structure from the spindle nut 92 disclosed by Taubmann. Spindle nuts generally have an elongated shape with a central inner bore and have a relatively small material thickness. Spindle nuts also have an axial bore having internal toothing. In contrast, the worm wheel 47 of Hendrick has a large diameter, which especially is large compared to the axial width of the worm wheel 47. Furthermore, the worm wheel 47 of Hendrick does not have an axial bore with an internal toothing. Therefore, because the worm wheel 47 of Hendrick and the spindle nut 92 of Taubmann significantly differ in size, shape and function, one of ordinary skill in the art would not have modified the spindle nut of Taubmann based on the teachings of Hendrick.

For the foregoing reasons, Applicants submit that claims 1-5, 7, 8, 12, 15-27, 29-32, 34, 36, 37, 82-87 are patentable over Taubmann in view of Hendrick and McMullen.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taubmann in view of Hendrick, McMullen and Moeller, Jr. (USP 4110054). Because claim 1 is patentable over Taubmann in view of Hendrick and McMullen, claim 11 is patentable over Taubmann in view of Hendrick, McMullen and Moeller, Jr.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taubmann in view of Hendrick, McMullen and Hauser, Jr. (USP 4386893). Because claim 1 is patentable over Taubmann in view of Hendrick and McMullen, claim 14 is patentable over Taubmann in view of Hendrick, McMullen and Hauser, Jr.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taubmann in view of Hendrick, McMullen and Segal, (USP 2313776). Because claim 26 is patentable over

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Taubmann in view of Hendrick and McMullen, claim 28 is patentable over Taubmann. in view of Hendrick, McMullen and Segal.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taubmann in view of Hendrick, McMullen and Muellich (USP 5893959). Because claim 34 is patentable over Taubmann in view of Hendrick and McMullen, claim 35 is patentable over Taubmann in view of Hendrick, McMullen and Muellich.

Based on the foregoing, Applicants believe the claims are in condition for allowance.

Respectfully submitted,
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